

CARBON **FOOTPRINT** **REPORT** **2021-2022**

telecomegypt®

we



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Abbreviations & Acronyms



Abbreviations & Acronyms

AC	Air Conditioner	ISO	International Organization for Standards
AR5	Assessment Report Number 5 of IPCC	ICT	Information and Communication Technologies
BUR	Biennial Updated Report	kg	Kilograms
BY	Base Year	kWh	Kilowatt hour
CDM	Clean Development Mechanism	L	Liters
CDP	Carbon Disclosure Project	Mtco₂e	Metric tons Carbon Dioxide Equivalent
CFP	Carbon Footprint	M³	Cubic Meter
CO₂	Carbon Dioxide	Mn	Millions
COP	Conference of Parties	Mt	Metric Tons
CH₄	Methane	NCV	Net Calorific Value
CO₂e	Carbon Dioxide Equivalent	N₂O	Nitrous Oxide
°C	Celsius Degree	NDC	National Determined Contribution
DEFRA	Department for Environment Food & Rural Affairs	NCCS	National Climate Change Strategy
EF	Emission Factor	NF₃	Nitrogen Tri-fluoride
FTE	Full-Time Employee	PV	Photovoltaic
GHG	Greenhouse Gases	PFCs	Perfluorocarbons
GWP	Global Warming Potential	PKM	Passenger Kilometer
HFCs	Hydrofluorocarbons	PB	Petabyte
HVAC	Heating, Ventilation and Air Conditioning	SDG	Sustainable Development Goals
HCWW	Holding Company for Water and Wastewater	SDS	Sustainable Development Strategy
IPCC	Intergovernmental Panel on Climate Change	WTT	Well to Tank

Executive Summary

02

Executive Summary

For over 165 years, Telecom Egypt has been serving the Egyptian market, during which it played a pivotal role in the local, regional, and global ICT industries. Being Egypt's first integrated telecom operator and one of the largest subsea cable operators in the region, TE takes pride in its ability to provide its customers with the most advanced telecom and IT services and offer unmatched value propositions to the market.

As Telecom Egypt is committed to provide better ICT services to our customers and ensure better quality of life to the community; while caring for the environment as part of its pledge to participate in combating climate change through its various projects and initiatives. This step comes amid a long series of measures adopted by TE towards becoming a green company, such as expanding in renewable energy usage, replacing copper cables with Fiber optic cables, and increasing the usage of energy-efficient equipment in each component of our services.




Telecom Egypt is pleased to present its first carbon footprint report, with the reporting period running from January 1st 2021 to December 31st 2022. The carbon footprint report is carried out in accordance with the Greenhouse Gas Protocol Guidelines, IPCC Guidelines for Greenhouse Gas Inventories, and ISO 14064-1:2018 requirements.

This report is a first step towards reducing Telecom Egypt's emissions. It will provide an overall picture of Telecom Egypt's CO₂ emissions, as well as assist in identifying major emission sources and potential areas for improvement. Telecom Egypt is committed to producing a carbon footprint report on an annual basis with extended scope to cover other excluded entities and operations to monitor its progress in decreasing its carbon footprint. In the spirit of transparency, the report is available to the public.

Inventory Boundaries

The businesses and operations that comprise a company are defined by organizational boundaries. Telecom Egypt used the operational control approach to report GHG emissions in its carbon footprint. The following items were included in the carbon footprint:

Organizational Boundaries

		
27 Governorates	In 2021: 54,348 Employees In 2022: 52,477 Employees	In 2021: 32,797 Facilities In 2022: 33,772 Facilities
Covering all 27 governorates of Egypt.	Full-time and outsourced managers and employees.	Including all Telecom Egypt's Main Headquarters, Exchanges, Sales points, Flagships, Mobile Base Stations, Data Centers, International Cable Landing Stations, and MSAN Units

Operational Boundaries

The operational boundaries are the activities that lead to emissions, whether they are direct or indirect. They include direct GHG emissions (Scope 1), indirect GHG emissions from the consumption of purchased electricity (Scope 2), and indirect GHG emissions from other activities (Scope 3).

Carbon Footprint	SCOPE 1	SCOPE 2	SCOPE 3
	Direct Emissions	Indirect Emissions	Indirect Emissions
	<ul style="list-style-type: none">Stationary CombustionMobile CombustionFugitive Emissions	<ul style="list-style-type: none">Electricity Consumption	<ul style="list-style-type: none">Purchased goods and servicesFuel and energy-related activities (not Included in Scope 1 & 2)Waste generated in operationsBusiness TravelEmployee Commuting

Telecom Egypt Carbon Emission Intensity

Carbon emission intensity considers resulting scope 1 & 2 emissions (MtCO₂e) from the company operations versus sold product (petabyte), resulting revenue (million EGP), and number of employees. The carbon emission intensity per product is 23.81 MtCO₂e/PB in 2022 compared to 28.81 MtCO₂e/PB in 2021 where the intensity per revenue is 8.18 MtCO₂e/million EGP in 2022 compared to 9.65 MtCO₂e/million EGP in 2021.

The carbon intensity per FTE in 2022 is 6.90 MtCO₂e compared to 6.59 MtCO₂e in 2021 due to the difference in the number of employees and used facilities as mentioned in the previous paragraph.

Carbon Emission Intensity	2021	2022	Difference
Scope 1 & 2 per product (MtCO ₂ e/Petabyte)	28.81	23.81	Decreased by 17 %
Scope 1 & 2 per Revenue (MtCO ₂ e/million EGP)	9.65	8.18	Decreased by 15 %
Scope 1 & 2 per FTE (MtCO ₂ e/FTE)	6.59	6.90	Increased by 5 %

Benchmarking

Telecom Egypt's benchmarking was done externally with similar businesses and telecommunication companies.

Out of the six telecom companies that have been assessed, the average emission intensity for the years 2022 and 2021 is 23.38 & 26.44 mtCO₂e/FTE respectively; These companies are located in different countries around the world which might affect the emissions in such ways as weather conditions, the country's electricity mix, etc.

In contrast to other telecom companies, Telecom Egypt's emission intensity for the years 2022 and 2021 are 6.90 & 6.59 MtCO₂e/FTE, which is just below the average emission intensity value in both years, Only Scope 1 and 2 emissions are considered, and the businesses are compared as carbon intensity MtCO₂e/FTE.

Carbon Intensity Contribution

The below table shows the contribution of Scope 2 emissions from each region (%) resulting from company operations versus the contribution of both FTE in each region (%) and facilities number in each region (%) as Scope 2 contributes the largest portion of TE emissions in 2022 & 2021 where the purchased electricity considers the main emission source for the carbon emissions resulting from our operations.

Carbon Intensity Contribution Parameters		Region		
		Greater Cairo	Alexandria & Delta	Canal & Upper Egypt
Scope 2 Emissions per Region (%)	2022	45.8%	28.7%	25.5%
	2021	41.8%	34.7%	23.5%
Contribution of Region's Employee Number per Scope 2 Emissions (%)	2022	31.0%	30.7%	38.3%
	2021	24.3%	37.7%	38.0%
Contribution of Region's Facilities number per Scope 2 Emissions (%)	2022	45.4%	23.6%	30.9%
	2021	42.7%	28.6%	28.7%

Contribution with Strategic Sustainable Development Strategies

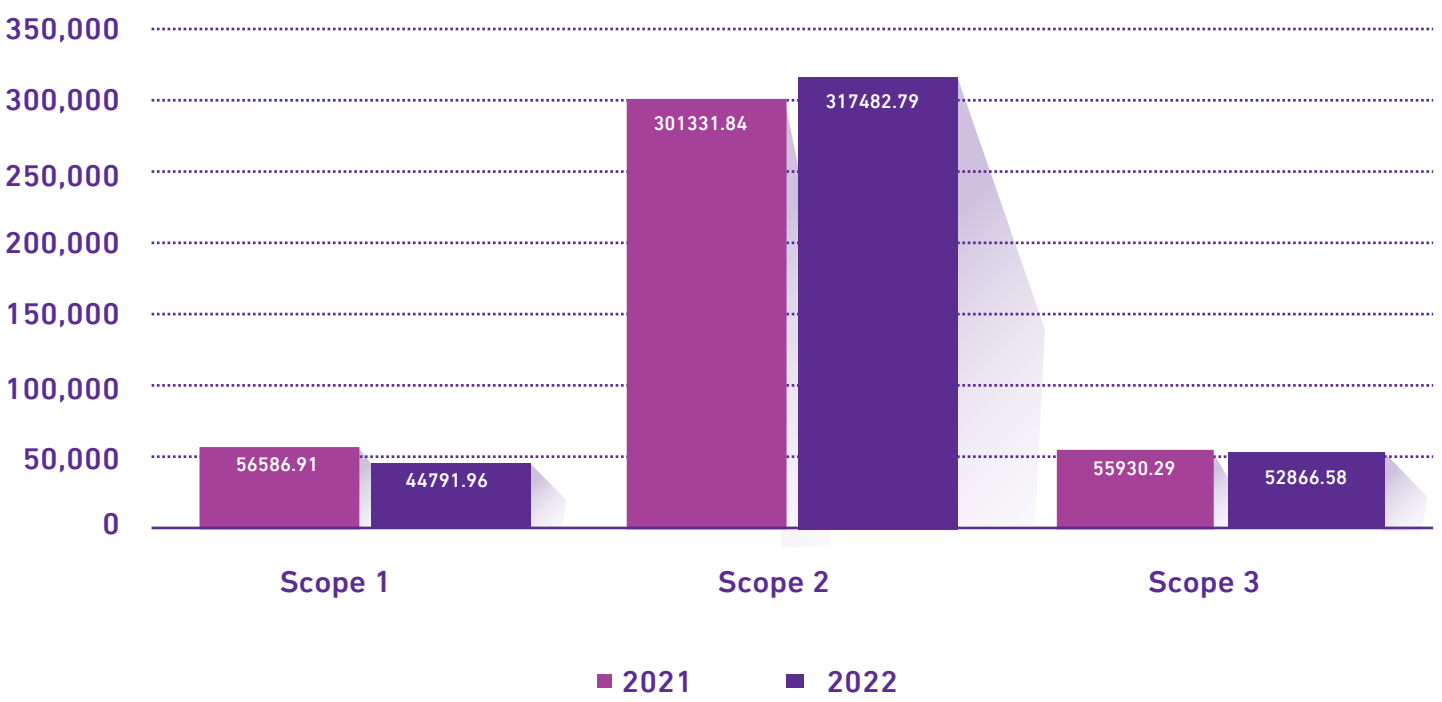
Egypt recently unveiled its National Climate Change Strategy 2050 (NCCS). The strategy includes climate action and mitigation agendas in all sectors, as well as emission reductions while supporting economic growth. Egypt's commitments are also emphasized in the Egyptian Government's Vision 2030 Sustainable Development Strategy (SDS), which was launched in 2016 as a national agenda to address the country's specific challenges and needs. Egypt is working by the United Nations' Sustainable development goals (SDGs)

As one of the major telecom operators in The MENA region, Telecom Egypt aims to set an example by working in accordance with the global, regional, and national sustainability and climate agendas and strategies.

Telecom Egypt's sustainability efforts and climate mitigation actions are closely aligned with Egypt's climate agenda, as outlined in Egypt's National Climate Change Strategy 2050 and Egypt Vision 2030, as well as the UN SDGs, where Telecom Egypt's strategic goals are aligned with the Digital Egypt vision, which aims to develop human capital, foster technological innovation, and transition into a digital economy. Telecom Egypt has moved serious steps towards digital transformation as one of the most critical strategic initiatives in the Egyptian market.

Summary of Telecom Egypt's GHG Emissions

The overall GHG Emission during the year 2022 for Telecom Egypt came to be 415,141.32 MtCO₂e compared to 413,849.04 MtCO₂e resulting in 2021. The following graph and table detail the carbon emissions per each scope resulting from company operations for the years 2022 and 2021



Emission Sources	Activity	Emissions Quantity (MtCO ₂ e)	
		2022	2021
Scope 1 - Direct Emissions			
Stationary Combustion	Fuel Burning – Diesel Generators	9,144.12	8,287.16
Mobile Combustion	Fuel Burning – Owned Vehicles	13,894.91	7,343.52
Fugitive Emissions	Refrigerants Leakage	21,752.93	40,956.23
Scope 2 – Indirect Emissions			
Electricity Consumption	Purchased Electricity	317,482.79	301,331.84
Scope 3 – Indirect Emissions			
Purchased goods and services	Paper Consumption	8,851.70	8,749.64
Fuel and energy-related activities (Not Included in Scope 1 & 2)	WTT - Stationary Combustion	2,264.85	2,052.59
	WTT - Mobile Combustion	2,104.33	1,699.84
	Water Usage and Waste water Treatment	547.38	628.23
Waste generated in operations	Solid Waste Disposal	38,578.16	42,190.80
Business Travel	Air Travel + WTT	157.17	120.78
Employee Commuting	Employee Transportation + WTT	362.99	488.41
Emissions Summary			
Scope 1 – Direct Emissions		44,791.96	56,586.91
Scope 2 – Indirect Emissions		317,482.79	301,331.84
Scope 3 – Indirect Emissions		52,866.58	55,930.29
Total Emissions		415,141.32	413,849.04

Telecom Egypt in Glance

Telecom Egypt History



1854

- Found in 1854 with the first telegraph line in Egypt.

1998

- Incorporated in 1998, replacing the former Arab Republic of Egypt National Telecommunication Organization (ARENTO).

2005

- Listed in 2005 on Egypt and London Stock Exchanges.

2003 - 2006

- Acquired a 45% stake in Vodafone Egypt in 2003 to 2006.

2017

- Rebranded the retail business to WE in 2017 with the launch of mobile services.

Telecom Egypt Lines of Business



Retail Services

Consumer Services

Provide a range of services including fixed line voice and broadband services plus mobile voice and data services, in addition to other value-added services.

Enterprise Services & Solutions

Total Telecom Services and Solutions Provider covering Mobile/Fixed Voice and Data Services / Integrated Solutions (Cloud/IOT/Smart Cities Solutions). Targeting both Private and Public Sectors.

Domestic Wholesale

Versatile Infrastructure wholesale services, availing all the required services transmission and access for all the licensed operators in the Egyptian Telecom Markets.

International Customers & Networks

Egypt's unique geography, connecting the Red and Med Seas, makes TE network a unique global resource connecting Euro-Asia and Euro-E-Africa infrastructure and positioning Egypt as the preferred corridor for internet traffic.

Wholesale Services

International Carriers Affairs

With more than 70 direct relations with international carriers, TE is maximizing the benefits of its international voice gateway to secure, international revenues portion and foreign currency generation. While using its unique geographical location starting growing the int'l voice transit business.

A Word from our CEO

03

A Word from our CEO



As part of Telecom Egypt's commitment to our communities, investors, customers, and the world at large, Telecom Egypt fully recognizes that climate change is widely recognized as one of the most profound challenges ever to face the human race and life on Earth, and it is humanity's currently most threatening issue. As a result, urgent collective action is required to address this crisis and secure a sustainable future for the next generations.

On the national side, Egypt's Low Carbon Emission Strategy and Biennial Updated Report set a baseline for its GHG inventory, and its National Determined Contribution (NDC) declared efforts to combat climate change. This led Egypt to earn the trust of the world by hosting COP27 and unveiling its updated National Strategy for Climate Change.

As a pioneer in sustainability and eco-friendly practices, Telecom Egypt has taken the lead in sparking climate action ahead of COP27. It has achieved this by transforming its cellular base stations in Sharm El Sheikh into solar-powered stations, demonstrating its dedication to environmental-friendly solutions.

Telecom Egypt aims to become a leader in corporate sustainability by harnessing the power of digitalization to tackle the climate crisis and mitigate its impact.

To achieve this, the company is developing a comprehensive carbon reduction strategy and focusing its efforts on high-impact activities showcasing its commitment to combating climate change through various projects and initiatives.

TE is replacing copper with fiber and adopting FTTH technology in all greenfield areas. Telecom Egypt has successfully connected over 93 percent of households with fiber-to-the-curb (FTTC) technology. Moreover, they have expanded their fiber-to-the-home (FTTH) services in all new-build areas across Egypt aligning with Egypt's Vision 2030 for a digitally transformed society and a robust digital economy.

A recent milestone on Telecom Egypt's sustainability agenda is the partnership with Egypt's New and Renewable Energy Authority. The company has inked a deal to procure all of its low-voltage power from renewable sources. This commitment makes Telecom Egypt avoids large portion of its GHG emissions and be one of the largest and most environmentally friendly telecommunications companies in the region.

Furthermore, Telecom Egypt strives to adopt eco-friendly business practices to the best of its ability. This includes promoting optimal resource utilization, recycling, and adopting sustainable and green supply chains whenever possible.

04

Approach and Inventory Boundaries

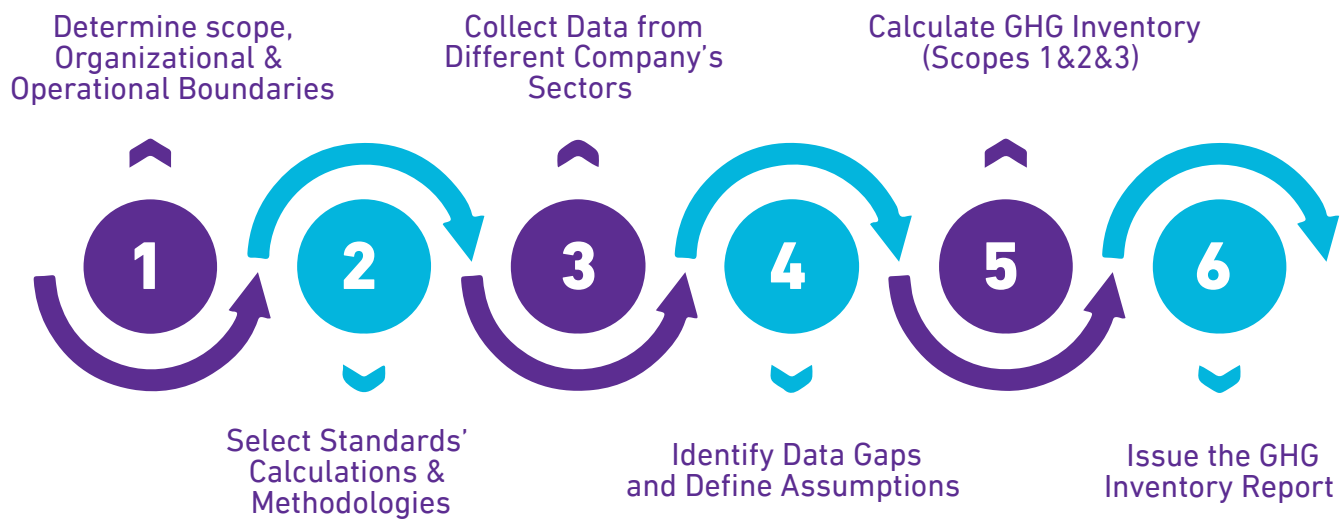
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Approach and Inventory Boundaries

GHG Inventory Development Steps

Before the implementation phase, the planning phase for the GHG inventory quantification was outlined. The following process flow Figure demonstrates the methodology and different phases that have been undertaken to develop the carbon footprint report.



Methodology of Developing GHG Inventory Report

Scope & Boundaries




The first step in the quantification of a corporate GHG inventory is the selection of scope and reporting boundaries.

Boundaries

Organizational Boundary

An organizational boundary outlines the businesses and operations that constitute a company to account for and report greenhouse gas emissions. Defining the organizational boundary is a key step in corporate GHG accounting. Companies can choose to report either the emissions from operations over which they have financial or operational control (the control approach) or from operations according to their share of equity (the equity share approach). In this report, the operation control approach is followed. In other words, Telecom Egypt is accountable for 100% of the GHG emission produced from its operations during the reporting period. As Such, it included Telecom Egypt and two of its subsidiaries We Data and TE Holding.

The following table shows the number of facilities, employees, and locations of the company's operations during the reporting period.

		
27 Governorates	In 2021: 54,348 Employees In 2022: 52,477 Employees	In 2021: 32,797 Facilities In 2022: 33,772 Facilities
Covering all 27 governorates of Egypt.	Full-time and outsourced managers and employees.	Including all Telecom Egypt's Main Headquarters, Exchanges, Sales points, Flagships, Mobile Base Stations, Data Centers, International Cable Landing Stations, and MSAN Units

Operational Boundary

The emissions fall under different scopes: Scope 1, resulting from our owned or controlled equipment and assets; Scope 2 covering emissions from purchased electricity; and Scope 3 embracing significant indirect emissions resulting from our operations.

In conformance with the GHG Protocol Corporate Standard, the reporting of Scope 1 and Scope 2 emissions, direct emissions and indirect emissions resulting from purchased electricity, are mandatory to report. However, emissions falling under Scope 3 are optional and businesses may choose which emissions to report. The operational boundaries for Telecom Egypt's 2021 and 2022 carbon footprint report include the following:

SCOPE 1

Emissions from sources that are owned or controlled by Telecom Egypt (i.e. any owned or controlled activities that release emissions straight into the atmosphere). The list of Scope 1 activities include the following:

- Refrigerants leaking
- Stationary fuel burning (generators, equipment, etc.)
- Mobile fuel burning for company - owned vehicles (this includes downstream and upstream transportation)

SCOPE 2

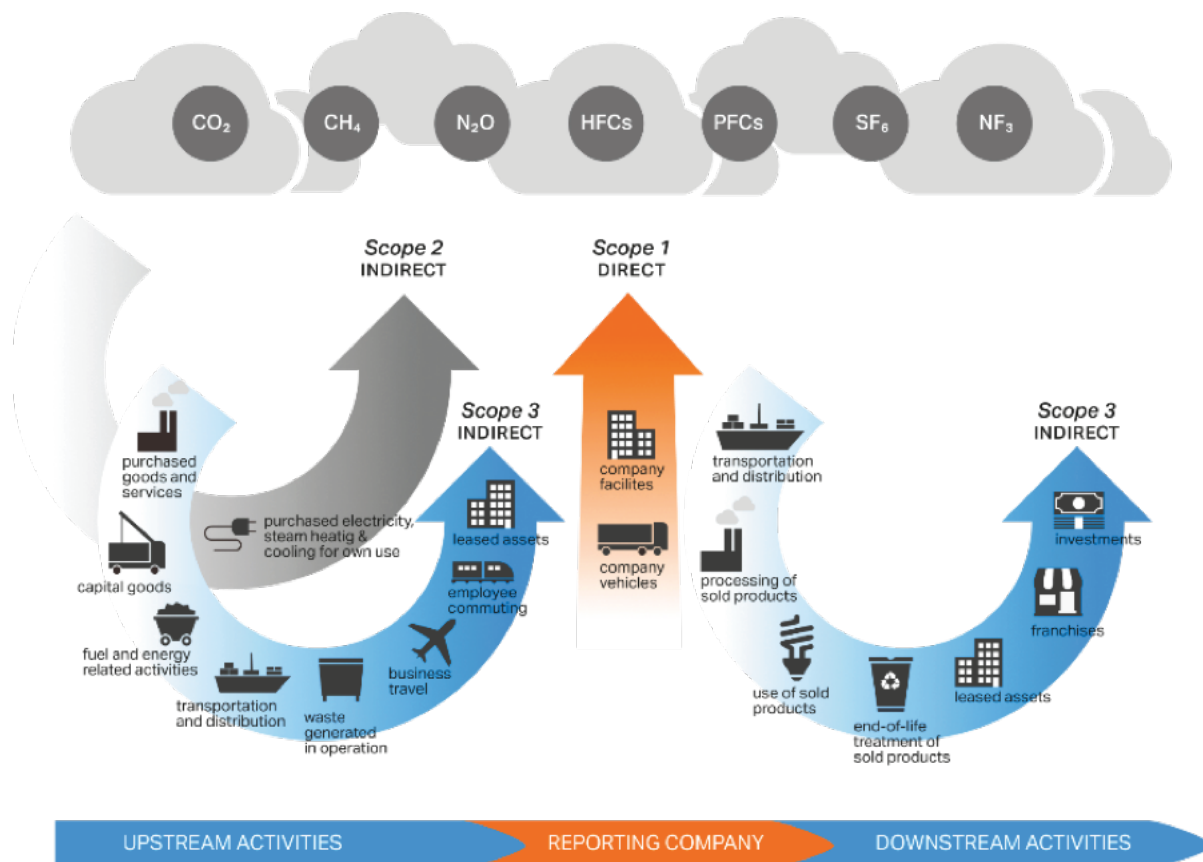
Emissions associated with the consumption of purchased electricity, heat or steam from a source that is not owned or controlled by Telecom Egypt. The list of Scope 2 activities include the following :

- Purchased electricity

SCOPE 3

Emissions resulting from other activities. This includes transport fuel used by air business travel, and non-owned vehicles by company for commuting to and from work; emissions from waste disposal, etc. The list of Scope 3 activities include the following:

- Purchased goods and services
- Fuel and energy-related activities (not included in Scope 1 and 2)
- Waste generated in operations
- Business travel
- Employee commuting



Reporting Boundary

The Telecom Egypt carbon footprint was calculated according to an operational control approach, related to the group's facilities. The facilities that were included in the GHG footprint calculation are detailed in the previous section.

All activities related to Telecom Egypt have been identified representing 100% of total Telecom Egypt-owned buildings, stores, and facilities located in Egypt; excluding third-party consumption data and franchise activities, with their corresponding emissions accounted for. Activity data for 2021 and 2022 was retrieved from the data recordings and all data has been reviewed and refined.

Reporting Period

The reporting period covers from 1st January 2021 to 31st December 2022 where the data used in calculating the GHG Inventory reporting was collected for the years 2021 and 2022.

Due to COVID-19 precautionary restrictions taken by the national authorities in 2021 and the expansion of TE operations occurred after reducing of these restrictions in 2022, TE has considered that year 2022 (from 1st January 2022 to 31st December 2022) is the ideal year to be Telecom Egypt's Base Year (BY) where the base year is considered the starting point of assessing the change in emissions, if any, over the years.

TE is expecting to include the emissions of more facilities in its 2022 reporting cycle and we will be committing to continuously expand our reporting boundaries over the coming years to capture the true scale of our emissions.



Carbon Footprint Overall Methodology

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Carbon Footprint Overall Methodology

Selection of Standard Calculation Methodologies

This carbon footprint assessment was conducted based on the GHG Protocol Guidelines, along with several international and widely applied standards, protocols, and guidelines specially developed for accounting and reporting GHG emissions, including but not limited to the following:

The standards and guidelines followed to develop the carbon footprint report were:

- The Greenhouse Gas (GHG) Protocol Guidelines which include, but are not limited to
 - Corporate Accounting and Reporting Standard
 - Corporate Value Chain (Scope 3) Accounting and Reporting Standard
- ISO 14064-1:2018 Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals
- 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for Greenhouse Gas Inventories (with 2019 Refinements)

In alignment with the GHG protocol, the carbon footprint assessment accounted for all seven greenhouse gases covered by the Kyoto protocol: namely carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen tri-fluoride (NF₃).

Identification of Emissions Sources

Each activity falls under a certain scope according to the GHG Protocol Guidelines. The GHG Protocol defines Scope 1 emissions as the direct emissions from sources that are owned or controlled by Telecom Egypt, and scope 2 emissions are indirect emissions from energy sources that are not owned or controlled by the reporting, and Scope 3 are indirect emissions a consequence of the operations of the organization but are not directly owned or controlled by the reporting company.

SCOPE 1 – Direct Emissions

Emissions from sources that are owned or controlled by Telecom Egypt (i.e. any owned or controlled activities that release emissions straight into the atmosphere). Scope 1 emissions can be further subdivided into:

- Stationary Combustion Sources (Fuel Burning – Diesel Generators): Emissions due to fuel combustion to produce energy
- Mobile Combustion Sources (Fuel Burning – Owned Vehicles): Emissions due to vehicles owned/controlled by the Company
- Fugitive Emissions: Emissions due to leaks and other irregular releases of gases

SCOPE 2 - Indirect Emissions

Emissions associated with the consumption of purchased electricity, heat or steam from a source that is not owned or controlled by Telecom Egypt. The list of Scope 2 activities includes the following:

- Purchased electricity

SCOPE 3 – Indirect Emissions

Emissions resulting from other activities. This includes emissions resulting from air business travel, employee transportation to and from work and emissions from waste disposal; ... etc. The list of Scope 3 activities includes the following:

- Fuel burning – Owned vehicles - Well-To-Tank (WTT)
- Fuel burning – Stationary Combustion - Well-To-Tank (WTT)
- Water usage & wastewater treatment
- Solid waste disposal
- Air Travel + Well-To-Tank (WTT)
- Paper consumption
- Employee Transportation + Well-To-Tank (WTT)

Calculate GHG Inventory

Calculation Approach

When calculating the Carbon Footprint (CFP) of Telecom Egypt, the emissions of each activity have been considered. Each activity falls under a certain scope, which is described more in depth under each activity.

The general calculation approach for the emissions, counted in MtCO₂e, is multiplying the activity with its corresponding emission factor. When doing this, analysis is performed in order to make sure the results of the emissions are obtained in the desired unit MtCO₂e. The unit of the GHG Emissions is metric tons carbon dioxide equivalent (MtCO₂e).

The unit CO₂e refers to an amount of a GHG, whose atmospheric impact has been standardized to that one-unit mass of carbon dioxide (CO₂), based on the global warming potential (GWP) of the gas.

To calculate the GHG emissions, the main formula used to calculate GHG emissions is:

$$\text{GHG Emissions (MtCO}_2\text{e)} = \text{Activity Data (unit)} \times \text{Emission Factor [MtCO}_2\text{e/unit]} \times \text{GWP}$$

Emission Factors

Emission factors (EF) are representing the quantity of pollutants released to the atmosphere caused by a certain activity. The emission factor is usually expressed as the carbon dioxide equivalent (CO₂e) emissions generated by a unit weight, volume, distance, or duration of the activity, e.g., CO₂e/liter fuel consumed, CO₂e/km driven or CO₂e/kWh of purchased electricity etc. The emission factors were identified based on the default values adopted by:

- IPCC Intergovernmental Panel on Climate Change
- DEFRA Department for Environment, Food & Rural Affairs UK 2021
- Country-Specific Emission Factors calculated specifically for Egypt

With regards to the country-specific grid electricity emission factor, the emission factor was derived based on the Clean Development Mechanism (CDM) Methodology. The emission factor is based on Egypt's fuel mix and power generation and the country's trends and strategies. Each fuel in the power generation is considered, where the Net Calorific Value (NCV) of the fuel is used to obtain the country-specific grid emission factor.

The emission factor for water supply and wastewater treatment is calculated using a conversion formula, provided by the Holding Company for Water and Wastewater (HCWW).

Global Warming Potential (GWP)

It is the heat absorbed by any greenhouse gas in the atmosphere, as a multiple of the heat that would be absorbed by the same mass of carbon dioxide. Human activity emits different kinds of GHGs.

A physical characteristic of a GHG represents its impact on the greenhouse effect and allows conversion of 1 kg of GHG into an x amount of kg of Carbon Dioxide equivalent, noted CO₂e has been used where GWP is 1 for CO₂. Thus, the emissions of different gases can be compared.

We applied 100-year GWPs to all emissions data in this inventory to calculate total emissions, in metric tons of carbon dioxide equivalent (MtCO₂e). Global warming potential values were sourced from the Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report (AR5).

The Kyoto Protocol GHGs (or categories of GHGs) and their respective GWPs are listed in the table below.

Greenhouse Gas	Chemical Formula	100-Year GWP
Carbon Dioxide	CO ₂	1
Methane	CH ₄	28
Nitrous Oxide	N ₂ O	265
Hydrofluorocarbons	HFCs	Various
Perfluorocarbons	PFCs	Various
Nitrogen Tri-fluoride	NF ₃	16,100
Sulphur Hexafluoride	SF ₆	23,500

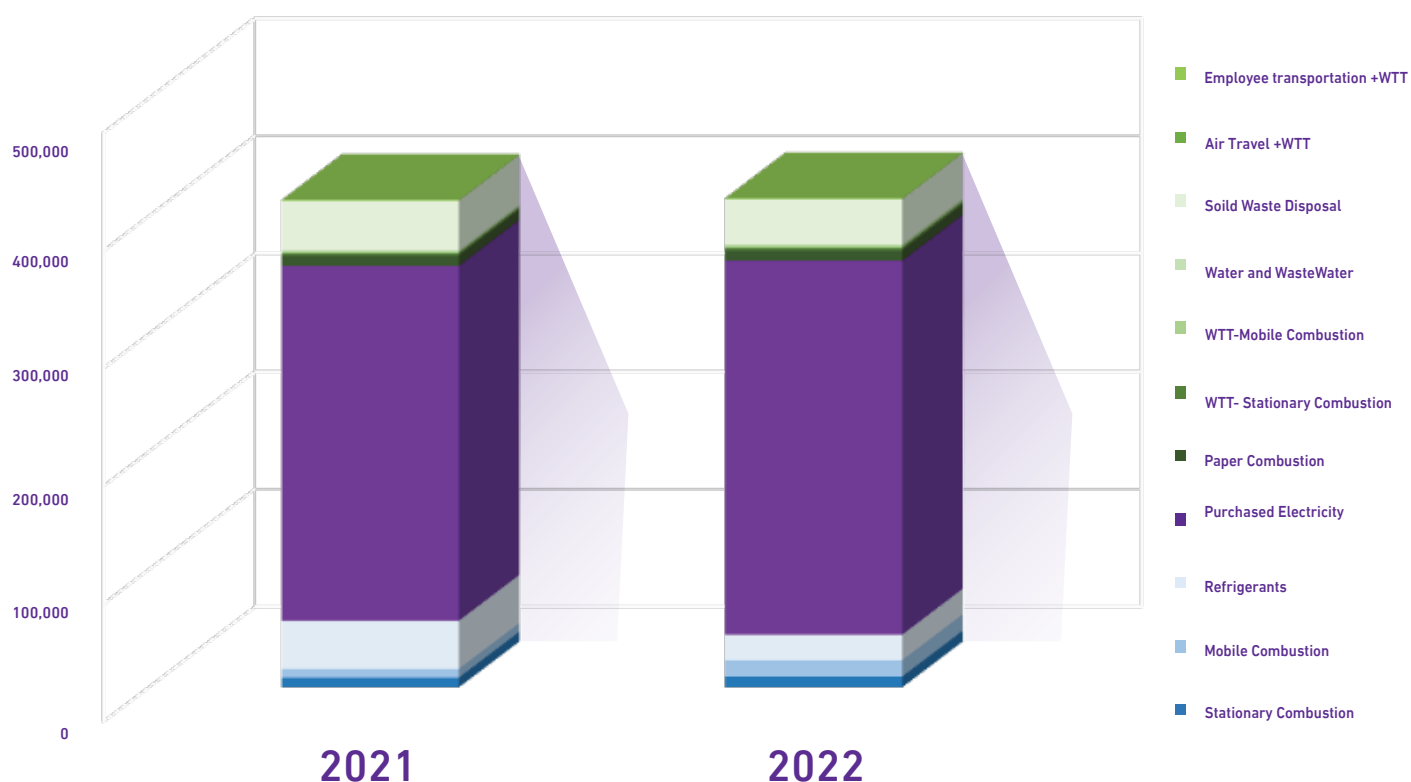
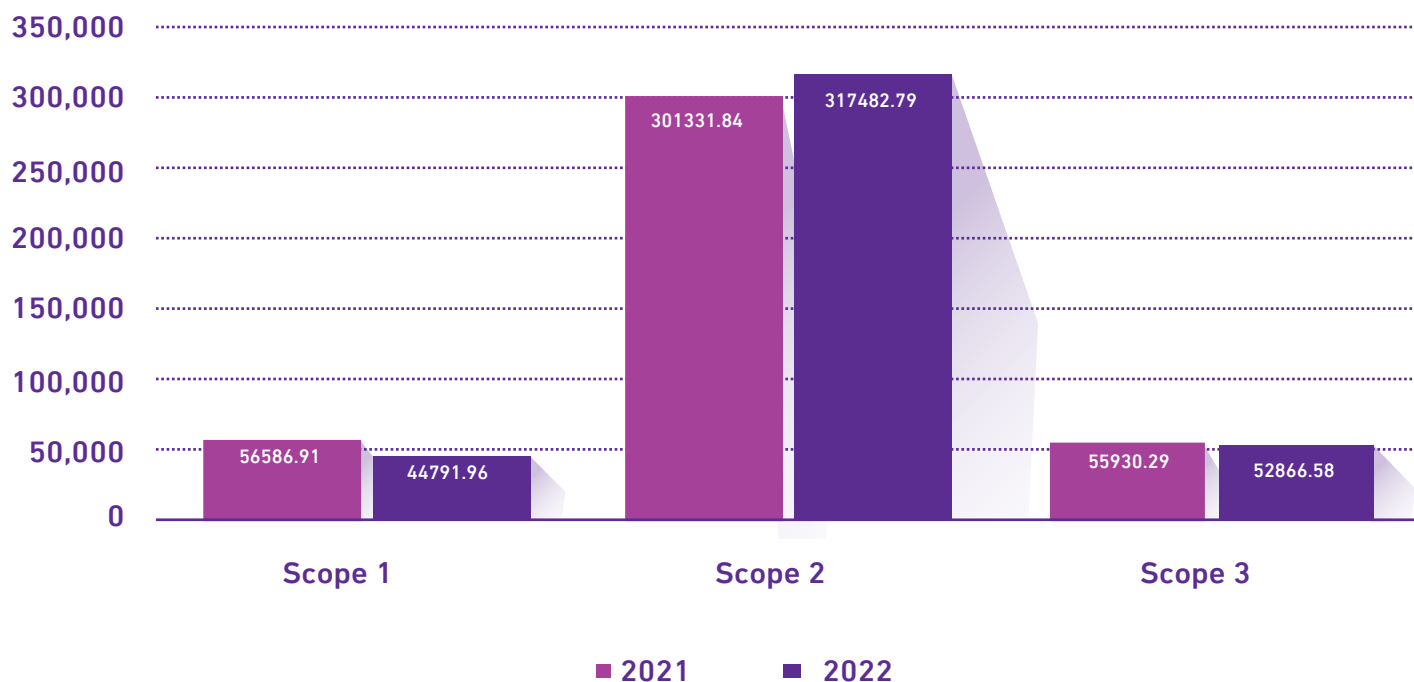
It should be highlighted that CO₂, CH₄, N₂O, and HFCs are only included in the calculations while SF₆, NF₃, and PFCs are not captured for all Telecom Egypt’s facilities for Scope 1 due to the nature of operations and activities (service industry) of Telecom Egypt.

06

Emissions Results

Emissions Results

The overall GHG Emission during the year 2022 for Telecom Egypt came to be 415,141.32 MtCO₂e compared to 413,849.04 MtCO₂e resulting in 2021. The following graphs and table detail the carbon emissions per each scope resulting from company operations for the years 2021 and 2022



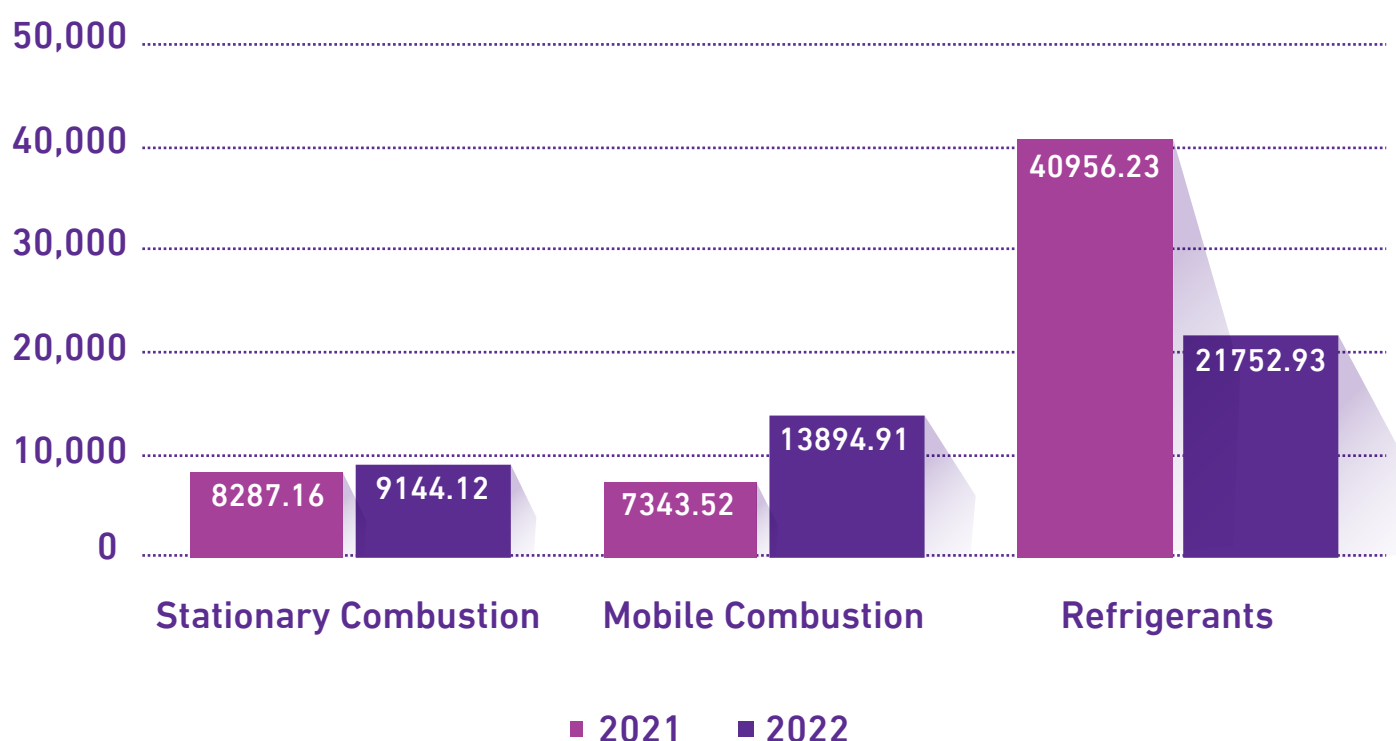
GHG Emissions Summary

Emission Sources	Activity	Emissions Quantity (MtCO ₂ e)	
		2022	2021
Scope 1 - Direct Emissions			
Stationary Combustion	Fuel Burning – Diesel Generators	9,144.12	8,287.16
Mobile Combustion	Fuel Burning – Owned Vehicles	13,894.91	7,343.52
Fugitive Emissions	Refrigerants Leakage	21,752.93	40,956.23
Scope 2 – Indirect Emissions			
Electricity Consumption	Purchased Electricity	317,482.79	301,331.84
Scope 3 – Indirect Emissions			
Purchased goods and services	Paper Consumption	8,851.70	8,749.64
Fuel and energy-related activities (Not Included inScope 1 & 2)	WTT - Stationary Combustion	2,264.85	2,052.59
	WTT - Mobile Combustion	2,104.33	1,699.84
	Water Usage and Waste water Treatment	547.38	628.23
	Waste generated in operations	Solid Waste Disposal	38,578.16
Business Travel	Air Travel + WTT	157.17	120.78
Employee Commuting	Employee Transportation + WTT	362.99	488.41
Emissions Summary			
Scope 1 – Direct Emissions		44,791.96	56,586.91
Scope 2 – Indirect Emissions		317,482.79	301,331.84
Scope 3 – Indirect Emissions		52,866.58	55,930.29
Total Emissions		415,141.32	413,849.04

Scope 1: Direct Emissions

Scope 1 emissions for the years 2021 and 2022 were 56,586.91 MtCO₂e (representing 13.7 % of total 2021 GHG emissions) and 44,791.96 MtCO₂e (representing 10.8 % of total 2022 GHG emissions). The below figure represents a breakdown of the sources of emissions that make up the Scope 1 emissions of Telecom Egypt in 2021 and 2022.

Refrigerants represent the largest sources of GHG emissions within Scope 1 in both years 2021 and 2022 with total emissions of 40,956.23 MtCO₂e in 2021 and 21,752.93 MtCO₂e in 2022.



Stationary Combustion

Fuel Burning – Diesel Generators

Emissions resulting from diesel fuel burning in facilities fall under scope 1 (direct emissions). Stationary combustion sources at Telecom Egypt include generators that are used diesel as fuel to operate and supply the company's electricity demands backup in case of a power outage.

In 2022, the total diesel consumed was 3,602,200.20 liters which resulted in 9,144.13 MtCO₂e of emissions (45% from base stations) compared to 3,264,610.25 liters in 2021 which resulted in 8,287.16 MtCO₂e of emissions (46% from base stations).

Mobile combustion

Fuel Burning – Owned Vehicles

Mobile combustion falls under scope 1, as it is a direct emission from vehicles owned and controlled by Telecom Egypt. The emissions considered in this activity are from Telecom Egypt owned vehicles and operated coasters. The company operations consumed 2,273,584 liters of diesel, 1,100,876 liters of petrol, and 32,595 M³ of natural gas in 2022 which resulted in 13,894.91 MtCO₂e while in the year 2021, 1,524,864 liters of diesel, 1,228,032 liters of petrol, and 2,315 M³ of natural gas were consumed that leads to 7,343.53 MtCO₂e of emissions

Fugitive Emissions

Refrigerants Leakage

Fugitive emissions refer to the unintentional release of emissions from sources that can include equipment leaks, such as refrigeration leaks by ACs used. ACs are widely used in Telecom Egypt to maintain optimum room temperature that suitable work environment for employees and would preserve the technical equipment from being broke down. In a hot, humid country like Egypt, ACs would be used almost around the year to maintain the cool interior temperature.

The emissions corresponding to refrigerant leakage were accounted for under scope 1, as it is a direct emission from the facilities owned by Telecom Egypt. This includes all types of ACs that exist in all Telecom Egypt facilities.

Telecom Egypt in 2022 and 2021 has consumed 12,624.80 and 23,604.80 kg, respectively of refrigerants (R22, R407c, R134a, R410a, and R141b) in all Telecom Egypt facilities. By using default operating emission factors and the GWP of the refrigerants from the IPCC fifth assessment report, the total GHG emissions due to refrigerants in 2022 and 2021 were 21,752.93 and 40,956.23 MtCO₂e, respectively.

Scope 2: Indirect Emissions

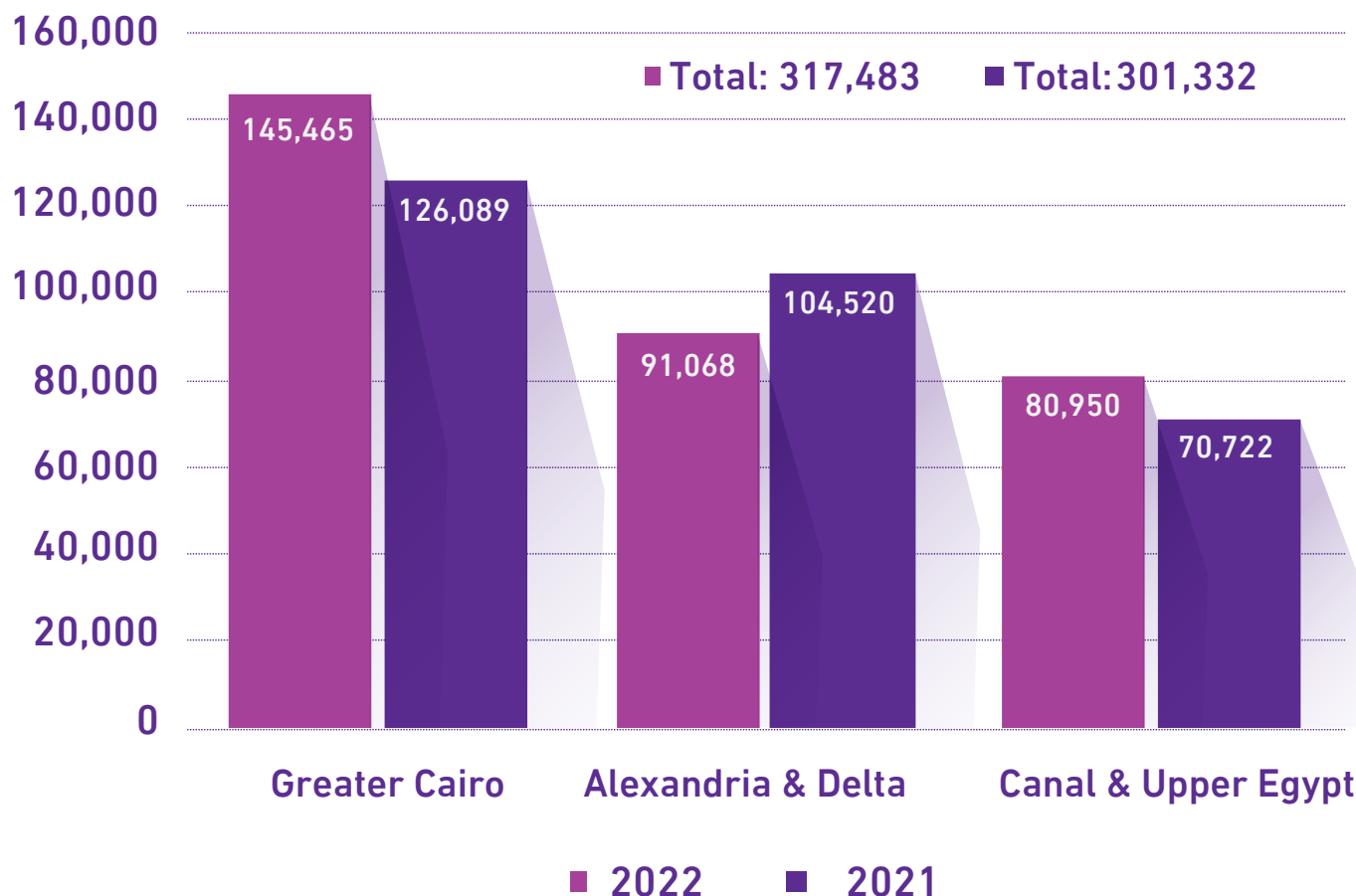
Emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling. Although scope 2 emissions physically occur at the facility where they are generated, they are accounted for in an organization's GHG inventory because they are a result of the company's operations.

Purchased Electricity

Purchased Electricity falls under Scope 2 (Indirect emissions). Telecom Egypt receives its electricity supply from the National Grid of Electricity. At Telecom Egypt, Electricity is the main source of energy for the facilities that are used in HVAC, lighting, and power supply to technical equipment in the reporting period of 2021.

The annual electricity consumption of the facilities was obtained from the company's database. The electricity consumption for the year 2022 was 744,640,294 kWh which resulted in 317,483 MtCO₂e compared to 706,759,045 kWh in 2021 which resulted in 301,332 MtCO₂e. With all the intensive use of electricity, electricity consumption must inevitably be contributing the most towards the total carbon footprint of Telecom Egypt which represents in 2022 and 2021 approximately 76.5 % and 72.8 %, respectively of the total GHG emissions.

The below graph show the GHG emission released from using purchased electricity in different regions in Egypt.



Scope 3: Indirect Emissions

Scope 3 emissions for the year 2021 were 55,930.29 MtCO₂e (representing 13.5 % of total 2021 GHG emissions) and for the year 2022 52,866.58 MtCO₂e (representing 12.7 % of total 2022 GHG emissions). The following categories represent a breakdown of the sources of emissions that make up the Scope 3 Indirect emissions of Telecom Egypt.

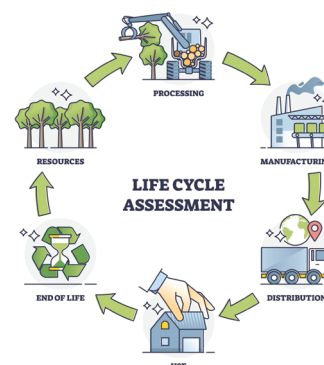
Purchased Goods and Services

Paper Consumption

Paper consumption emissions fall under scope 3 (indirect emissions). Activity data were obtained from Telecom Egypt's database. Offices consumed printing paper and other paper materials.

For all of Telecom Egypt's facilities, one type of office paper has been consumed in the reporting period. Office paper type and specs have been assumed, as follows:

- Paper weight 80 g.
- Paper type: Uncoated.
- Paper end of life was included.
- 100% Raw materials, 0% Recycled.
- Paper size: A4 paper.



Emission factor boundaries are cradle to gate and usage, which includes the extraction of raw material and transport of raw material to the factory gate, product manufacturing, and product transportation to retail.

In 2022, the emissions, from the use of 9,627.70 tons of paper, were found to be 8,851.70 MtCO₂e (67% from printing paper) compared to the resulting emissions in 2021 which is 8,749.64 MtCO₂e from 9,516.60 tons of paper (68% from printing paper).

Fuel and Energy-Related Activities (Not Included in Scope 1 and 2)

The boundaries of this activity included well-to-tank emissions associated with the indirect fuel burning as well as water usage and wastewater treatment activities.

Well-to-Tank (WTT) emissions

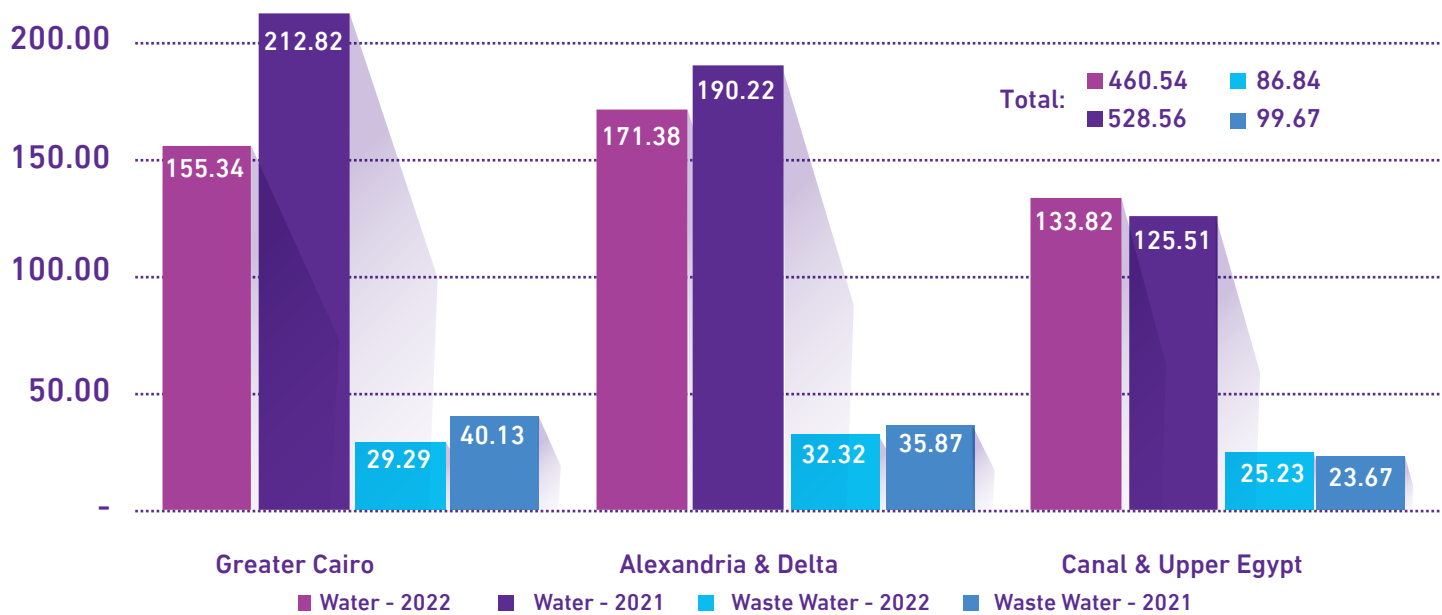
Telecom Egypt accounted for WTT emissions to capture the maximum climate impacts from fuel-burning activities. Emissions related to fuel burning WTT fall under scope 3 as follows:

WTT emissions resulting from stationary combustion were 2,264.85 MtCO₂e in 2022 compared to 2,052.59 MtCO₂e in 2021. WTT emissions from mobile combustion were 2,104.33 MtCO₂e in 2022 compared to 1,699.84 MtCO₂e in 2021.

Municipal Water Usage and Wastewater Treatment

All Telecom Egypt’s facilities are supplied by domestic water through the municipality infrastructure system. The annual water consumption for the facilities was obtained from the company’s database.

The total emissions of this category were 547.38 MtCO₂e in 2022 compared to 628.23 MtCO₂e in 2021. Total water consumption was 3,086,191.75 m³ resulting in 460.54 MtCO₂e in 2022 while 3,542,000.02 m³ (528.56 MtCO₂e) in 2021. On another hand, 2,314,643.81 m³ of wastewater was generated (86.84 MtCO₂e) for the year 2022 compared to 2,656,500.01 m³ (99.67 MtCO₂e) for 2021. Thus, the chart summarizes the GHG emission gases released from water consumption and wastewater treatment in different geographical regions in Egypt.



Waste Generated in Operations

Solid Waste Disposal

Waste disposal emissions were accounted for under Scope 3 indirect emissions. The emissions are associated with the transportation of recycling facilities and the disposal of non-recyclable waste to landfills.

Solid waste composition is assumed to include all waste types; paper, plastics, glass, metal, and organic waste. The scrap and electronic wastes resulting from company operations were recycled by third-party vendors specialized in recycling these types of wastes.

The municipal solid waste generated by employees at Telecom Egypt was estimated using the British Standard for Waste Management in buildings (BS 5906:2005) due to the unavailability of data. According to the British standard, we were able to quantify the waste tonnage and weekly generation rate for employees. Also, the standard helped in determining waste types produced (paper, organic, plastic, glass, metal, etc.). Paper and Cardboard share in the total volume of waste generated is up to 72%. However, organic waste share represents only 8% of the total volume of waste generated.

The total emissions were 38,578.16 MtCO₂e in 2022 from 180,289.17 tons of waste generated compared to 42,190.80 MtCO₂e in 2021 from 291,778.62 tons.

The waste generated for the year 2022 was 43,848.97 tons of sold solid and electronic wastes and 136,440.20 tons of waste resulted by employees while the waste generated for the year 2021 was 150,473.82 tons of sold solid and electronic wastes and 141,304.80 tons of waste resulted by employees.

Business Travel

Air Travel

All business flights booked were compiled in Telecom Egypt's database. Flight distances were then obtained using a great circle route mapper. After determining the distance traveled in km, each flight was classified into one of 3 categories by its length, domestic (less than 900 Km), short-haul (between 900 and 3,700 Km), and long-haul flights (over 3,700 Km).

The total emissions of Air travel were 157.17 MtCO₂e in 2022 resulting from aerial travel covering a distance of 468,098 kilometers (141.88 MtCO₂e flight emissions and 15.29 MtCO₂e in WTT emissions). Telecom Egypt's Aerial transportation in 2021 covered a distance of 592,844 kilometers resulting in 120.78 MtCO₂e (108.86 MtCO₂e from flight emissions and 11.92 MtCO₂e from WTT emissions).

Employee Commuting

Employee Transportation

Emissions from employees commuting in Coasters that are not owned and controlled by Telecom Egypt so it falls under scope 3; WTT emissions are also accounted for under scope 3. The coasters travel all around greater Cairo but are all specified to employees in the headquarters, therefore the footprint resulting from the use of coasters is attributed to the Smart Village buildings. The data on the destinations of the coasters were obtained from Telecom Egypt's transportation sector database, then the number of annual kilometers traveled was calculated using the annual distance traveled by each coaster.

The total emissions resulting in this category were 362.99 MtCO₂e in 2022 compared to 488.41 MtCO₂e in 2021.



BENCHMARK

Carbon Intensity and Benchmarking

07

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Carbon Intensity and Benchmarking

Carbon Intensity

Telecom Egypt has accomplished 44,273 million EGP as revenue in 2022 from its operations compared to 37,088 million EGP in 2021 from its operations. The total numbers of employees in 2022, and 2021 are 52,477 and 54,348 respectively.

Total carbon emissions are distributed as scope 1, scope 2 and scope 3 emissions as detailed in this table

GHG Emissions Summary	2021	2022
Scope 1 – Direct Emissions (MtCO ₂ e)	56,586.91	44,791.96
Scope 2 – Indirect Emissions (MtCO ₂ e)	301,331.84	317,482.79
Scope 3 – Indirect Emissions (MtCO ₂ e)	55,878.81	52,866.58
Total Emissions (MtCO ₂ e)	413,849.04	415,141.32

Carbon emission intensity considers resulting scope 1 & 2 emissions (MtCO₂e) from the company operations versus sold product (petabyte), resulting revenue (million EGP) and number of employees. The carbon emission intensity per product is 23.81 MtCO₂e/PB in 2022 compared to 28.81 MtCO₂e/PB in 2021 where the intensity per revenue is 8.18 MtCO₂e/million EGP in 2022 compared to 9.65 MtCO₂e/million EGP in 2021.

The carbon intensity per FTE in 2022 is 6.90 MtCO₂e compared to 6.59 MtCO₂e in 2021.

The following table shows the carbon intensity for scope emissions per employee, petabyte, and revenue and their differences for the years 2021 and 2022

Carbon Emission Intensity	2021	2022	Difference
Scope 1 & 2 per product (MtCO ₂ e/Petabyte)	28.81	23.81	Decreased by 17 %
Scope 1 & 2 per Revenue (MtCO ₂ e/million EGP)	9.65	8.18	Decreased by 15%
Scope 1 & 2 per FTE (MtCO ₂ e/FTE)	6.59	6.90	Increased by 5 %
Scope 1 & 2 & 3 per product (MtCO ₂ e/Petabyte)	33.31	27.29	Decreased by 18 %
Scope 1 & 2 & 3 per Revenue (MtCO ₂ e/million EGP)	11.16	9.38	Decreased by 16 %
Scope 1 & 2 & 3 per FTE (MtCO ₂ e/FTE)	7.61	7.91	Increased by 4 %

Benchmarking

Benchmarking is used to evaluate an organization's performance over time and compare it to others in the same industry. Furthermore, benchmarking enables organizations to identify industry best practices and additional opportunities for improvement. Telecom Egypt's benchmarking was done externally with similar businesses and telecommunication companies.

Only emissions from Scope 1 (direct emissions) and Scope 2 (indirect emissions) are included in the benchmarking. Scope 3 indirect emissions of operations not directly owned or controlled by the company are more difficult to verify than direct emissions, so they are not included in this section.

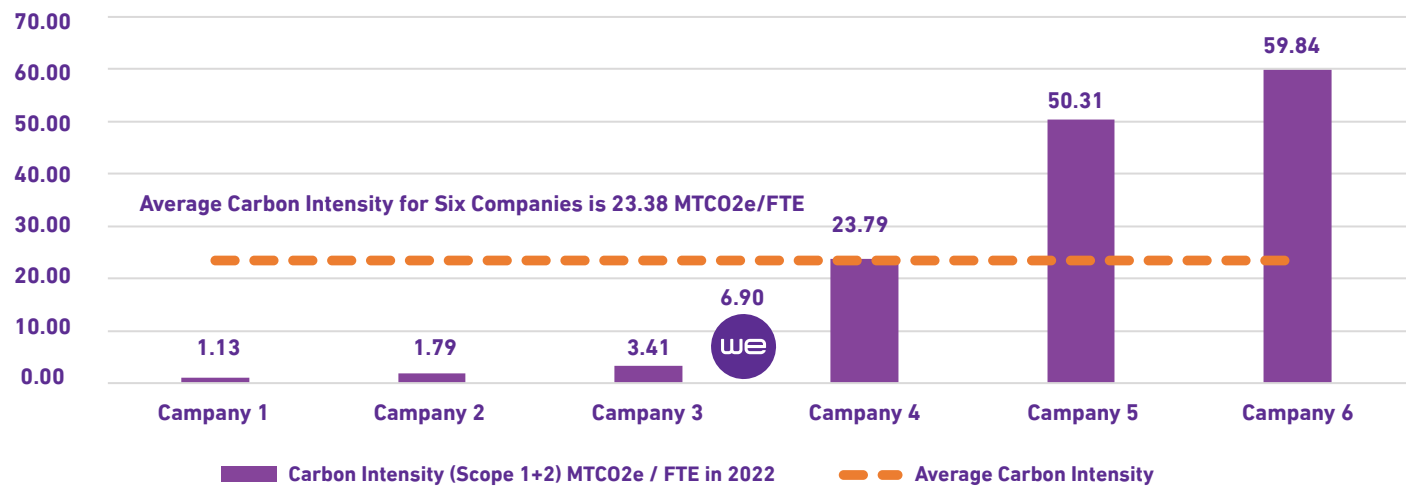
External Benchmarking

The Carbon Disclosure Project (CDP) and in addition to published carbon footprint data for six different telecommunications companies operating in various parts of the world have been evaluated. Out of the six telecom companies that have been assessed, the average emission intensity for the years 2022 and 2021 is 23.38 & 26.44 MtCO₂e/FTE respectively; These companies are located in different countries around the world which might affect the emissions in such ways as weather conditions, the country's electricity mix, etc.

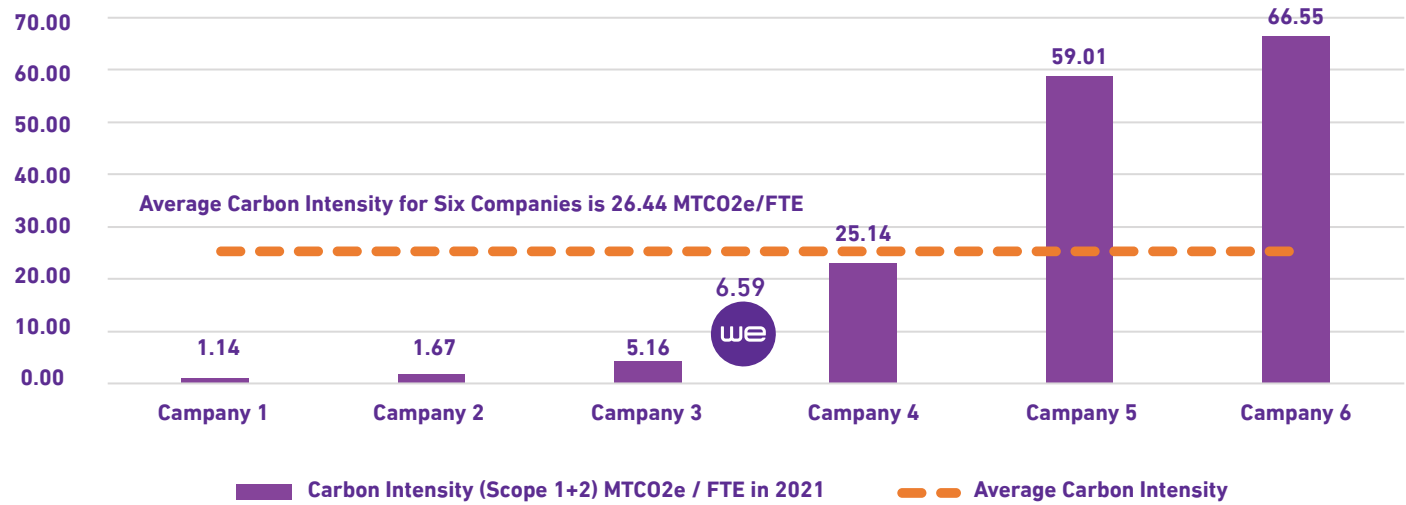
It is critical to remember that external benchmarking is only an indicative measure because the companies are located in different parts of the world, which may result in differences in system boundaries and business activities, as well as minor differences in methodologies for calculating carbon footprints.

In contrast to other telecom companies, Telecom Egypt's emission intensity for the years 2022 and 2021 are 6.90 & 6.59 MtCO₂e/FTE, which is just below the average emission intensity value in both years, as shown in the below charts. Only Scope 1 and 2 emissions are considered, and the businesses are compared as carbon intensity MtCO₂e/FTE.

External Benchmarking - 2022



External Benchmarking - 2021



Carbon Intensity Contribution

We strive to track and improve our internal performance in addition to assessing our company's external performance. As a result, an carbon intensity contribution is carried out, taking into account Scope 2 emissions from our main operations.

The below table shows the contribution of Scope 2 emissions from each region (%) resulting from company operations versus the contribution of both FTE in each region (%) and facilities number in each region (%) as Scope 2 contributes the largest portion of TE emissions in 2022 & 2021 where the purchased electricity considers the main emission source for the carbon emissions resulting from our operations.

Carbon Intensity Contribution Parameters		Region		
		Greater Cairo	Alexandria & Delta	Canal & Upper Egypt
Scope 2 Emissions per Region (%)	2022	45.8%	28.7%	25.5%
	2021	41.8%	34.7%	23.5%
Contribution of Region's Employee Number per Scope 2 Emissions (%)	2022	31.0%	30.7%	38.3%
	2021	24.3%	37.7%	38.0%
Contribution of Region's Facilities number per Scope 2 Emissions (%)	2022	45.4%	23.6%	30.9%
	2021	42.7%	28.6%	28.7%

The background is a blurred illustration of a person sitting at a desk, working on a laptop. A large, green, cloud-like shape with the text 'CO2' in white is positioned in the center. Several white arrows point in various directions around the scene, suggesting movement or flow. The overall color palette is warm, with oranges and yellows at the top transitioning into purples and blues at the bottom.

08

**The way forward
and our next steps**

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we

THE WAY FORWARD AND OUR NEXT STEPS

GHG Reduction Actions

A set of reduction actions have been taken by the company during the reporting period to minimize the emissions resulting from its different operation activities including energy efficiency measures and best practices for material usage, which have been implemented as applicable and where feasible across the various sectors to reduce/avoid GHG emissions as described below:

Energy Efficiency

To raise and enhance energy efficiency and reduce our energy consumption, which will lead to reducing our carbon emissions, we have made several key upgrades across our entities in 2021 and 2022:

- Installing 22 grid photovoltaic systems to power our exchanges and mobile base stations as a means to replace the use of diesel-powered generators and purchased electricity from non-renewable sources.
- Installation of E Green Eco-friendly Wireless Network Tower that reduces power consumption by around 24% in low traffic periods and powered by Solar Panels that lead to reduce CO₂ emission by 20%.
- Replacing normal diesel generators with hybrid generators that use diesel as well as batteries to power the mobile tower sites as happened in 90 sites where diesel consumption was reduced from 72 L to 18 L for one generator per day and this resulted in a reduction of up to 54% of diesel consumption for mobile tower sites.
- Replacing all non-energy efficient lighting with energy-efficient alternatives such as LEDs where applicable.
- Installing occupancy sensors in spaces such as private offices, meeting rooms, storage rooms, and corridors to reduce unnecessary energy consumption.
- Maintain the thermostat levels at 25°C where applicable to reduce the HVAC energy consumption. (The closer the thermostat setting is to the outside temperature, the greater the energy reductions).

A recent milestone on Telecom Egypt's sustainability agenda is the partnership with Egypt's New and Renewable Energy Authority. The company has inked a deal to procure all of its low-voltage power from renewable sources. This commitment makes Telecom Egypt avoids a large portion of its GHG emissions and be one of the largest and most environmentally friendly telecommunications companies in the region.

Refrigerants Use

- Maintain a comprehensive tracking system of the purchased refrigerants including their type and quantities, and their exact location of usage.
- Monthly checks on HVAC systems to identify any sources of leaks.
- Using more environmentally friendly refrigerants (R407C and R134A) instead of the traditional use of the refrigerant R22.

Material Usage and Waste Management

Telecom Egypt strives to adopt eco-friendly business practices to the best of its ability. This includes promoting optimal resource utilization, recycling, and adopting sustainable and green supply chains whenever possible:

- TE is replacing copper with fiber and adopting FTTH technology in all Greenfield areas. Telecom Egypt has successfully connected over 93 percent of households with fiber-to-the-curb (FTTC) technology. Moreover, they have expanded their fiber-to-the-home (FTTH) services in all new-build areas across Egypt aligning with Egypt's Vision 2030.
- Consider energy efficiency as a priority aspect in the procurement of products and equipment.
- Adopt a policy for making the default setting on all computers two-sided printing and promote online media instead of print media.
- Provide centralized printers in all offices instead of desktop or personal printers and consider adopting a printer management system to control the printing activity per employee.
- Setting up separate waste bins for different types of waste in all facilities, and ensuring collection and recycling by third-party contractors.
- Tracking amounts of electronic waste and recycling whenever possible.

Transportation

- Increase the use of teleconferencing technology to reduce travel.
- Implement periodic checkups and maintenance for the transportation fleet vehicles to ensure they operate efficiently about their fuel consumption.
- Ensure the most efficient transportation routes are employed by the fleet drivers to cut down additional unnecessary fuel consumption.
- Optimize the shipments of goods and ensure the transporting vehicles are carrying the optimal load of goods, neither overloaded nor underloaded, to ensure fuel consumption efficiency.

Looking Forward

Measuring and reporting Telecom Egypt's Group's GHG emissions from all businesses has provided a rich pool of data. However, this includes gaps that could be analyzed and improved further to enhance the yearly environmental and business performance.

The necessary groundwork to fully understand our GHG baseline was undertaken in 2022. Following the carbon footprint assessment of our business activities, we have identified an approach to quantifying Telecom Egypt's carbon footprint in the future:

- Periodically reassess the significance of emission sources¹ against the criteria in the global standards.
- We will confirm science-based targets for scopes 1, 2, and 3 emissions and have these validated by the science-based targets initiative.
- We will also be implementing a comprehensive strategy to tackle climate change within the company and across our value chain and demonstrate advocacy and leadership at a country and regional level, engaging with stakeholders on the promotion of climate goals.
- Internally we will be enhancing our own systems and processes for collecting and monitoring energy and carbon data, establishing a program of low carbon transition, encapsulating innovation, energy management, energy efficiency, and renewable energy.
- We also intend to better understand the opportunities and implications for offsetting GHG emissions in the country and will engage on this topic with the Saudi Green Initiatives and other governmental bodies.

¹ Significant emissions resources are mainly purchased electricity and refrigerants for covered reporting period.



Relevance to Sustainability Development

09

Relevance to Sustainability Development

It's time to cooperate to create a sustainable future for future generations. Telecom Egypt strives to minimize its social and environmental implications. We are working toward a more sustainable lifestyle with less of an impact on the environment by lowering our carbon footprint.

As one of Egypt's largest telecommunications businesses, Telecom Egypt aspires to set an example by working with global, regional, and national climate objectives and strategies. Telecom Egypt's sustainability initiatives and climate mitigation actions aim to satisfy Egypt's climate agenda as outlined in Egypt's National Climate Change Strategy 2050 and Egypt Vision 2030, as well as the UN SDGs.

Egypt's Vision 2030 Sustainable Development Strategy (SDS)

Egypt's obligations are also stressed in the Egyptian Government's Vision 2030 Sustainable Development Strategy (SDS), which was published in 2016 as a national agenda to address the country's specific challenges and requirements. The vision includes eight major goals that must be completed by 2030. This is in addition to attaining high and sustainable economic growth, increasing investments, and encouraging innovation in all disciplines. Egypt Vision 2030 focuses on mitigating the effects of climate change by creating a more integrated and sustainable society that improves resilience.



Telecom Egypt strategic initiatives are fully aligned with Egypt 2030 Vision, and Egypt digital transformation strategy. In response to the country's ambitions to transition into a digital society and build a strong digital economy "Digital Egypt", Telecom Egypt supports the vision's pillars, including digital transformation, capacity building and digital innovation. By leveraging its expanding portfolio of solutions and with the help of its skilled calibers, Telecom Egypt will continue to act as Egypt main ICT digitalization arm, providing the digital infrastructure needed to achieve Egypt 2030 Vision.

UN Goals for Sustainable Development (SDGs)

In 2015, all United Nations Member States approved the SDGs. These universal aims are a rallying cry to safeguard the earth, promote prosperity, and put an end to poverty. The 17 SDGs are interconnected, and action in one area affects the outcome in others, stressing the importance of balancing social, economic, and environmental sustainability in development.


















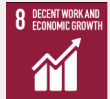







National Climate Change Strategy 2050 (NCCS)

Egypt has unveiled its National Climate Change Strategy 2050 (NCCS) to combat climate change. The recently released National Climate Change Strategy incorporates adaptation and mitigation strategies in all sectors, while also supporting economic growth and lowering emissions. The strategy comprises five key aims and several directions to help fulfill the strategy. The goals have been designed so that the first two are the key goals that demand the most cooperation from various sectors, and they also have the most influence on reducing greenhouse gas emissions and climate change.

The strategy contains five key goals and sets directions to achieve each objective:

- Goal 1: Achieving Sustainable Economic Growth and Low-Emission Development in Various sectors
- Goal 2: Enhancing Adaptive Capacity and Resilience to Climate Change and Alleviating the associated Negative Impacts
- Goal 3: Enhancing Climate Change Action Governance
- Goal 4: Enhancing Climate Financing Infrastructure
- Goal 5: Enhancing Scientific Research, Technology Transfer, Knowledge Management, and Awareness to Combat Climate Change

The below table clarifies the mitigation actions taken by Telecom Egypt as it phrases its pledge to participate in combating climate change through its various projects and initiatives where Telecom Egypt's strategic goals are aligned with the Digital Egypt vision, which aims to develop human capital, foster technological innovation, and transition into a digital economy.

MITIGATION ACTIONS	Goals Fulfilled		
	Egypt's Vision 2030 Development Strategy (SDS)	National Climate Change Strategy 2050 (NCCS)	UN Goals for Sustainable Development(SDGs)
Assessing the carbon footprint to establish a baseline of emissions and amounts for each scope of emissions		 	 
Increasing the proportion of renewable energy in the business and investment portfolio	   		
Reduce electricity needs through enhanced efficiency, such as by converting to LED lights, installing and replacing cooling systems (VRV), and implementing monitoring systems	  	 	  
Increased recycling and material circularity in waste management, such as paper shredding for recycling and warehouse procedures that assure little waste in all of the company's supply	  		  

10

**Detailed
Methodology**

Detailed Methodology

Data Sources

The emissions' sources were identified based on the kick-off meeting and induction training workshop organized initially. Then, site visits were conducted aiming at identifying the sources of emissions and the data availability. Customized site-specific data collection spreadsheets were designed for each emission source considered in the GHG inventory.

The data collection sheets were prepared based on the required parameters of each emission source at Telecom Egypt. Data collection sheets were communicated, and personal interviews were conducted simultaneously with respective departments to ensure transparency in the data collection procedure.

Different types of data may be taken to carry out a corporate carbon footprint. The most used types of data are:

- Primary data:
 - Data taken during interviews as well as recorded data that is directly linked to the assessment.
 - The monthly consumption of each facility in form of invoices that are used to calculate the emissions resulting from different activities.
- Secondary data: such as databases, studies, and reports.
- Assumptions: assumptions made based on internationally recognized standards and studies.

Data collected were categorized under Scope 1 direct emissions, Scope 2 indirect emissions, and Scope 3 indirect emissions. An example of a data collection sheet for stationary combustion can be seen in the below table.

Example of data collection sheets for stationary combustion

Source	Geographical Location	Fuel Type	Date (Month)	Consumption (liter/Month)	Total Yearly consumption (liter/year)
XX	XX	XX	XX	XX	XX

X = representing values

Data Quality

Assessing the data quality is a critical part of GHG reporting and accounting. The following Table details the data quality in terms of completeness. As seen, Telecom Egypt must commit to continually improving the data quality of reported data wherever possible and continue to refine its methodology to improve the coverage and transparency of its disclosure.

All data utilized to calculate the emissions arising from our activities are derived from our database. The quality of the data has been assessed and presented as detailed in the below table, where the data of each sector of the business has been assessed separately to allow better analysis and demonstration of resolution and additional clarifications.

Carbon Footprint Data Quality at Telecom Egypt

	Activity	Year	Data	Data Quality	Notes
	Fuel Burning – Diesel Generators	2021	3,264,610.25 Liters (Diesel)	Monthly Consumption per building – Liters/year	-
		2022	3,602,200.20 Liters (Diesel)		
	Fuel Burning – Owned Vehicles	2021	1,228,032 Liters (Petrol)	Monthly Fuel Consumption	A more accurate monthly recording system is recommended
			1,524,864 Liters (Diesel)		
			2,315 Cubic Meters (Natural Gas)		
		2022	1,110,876 Liters (Petrol)		
			2,273,584 Liters (Diesel)		
			32,595 Cubic Meters (Natural Gas)		
	Refrigerants Leakage	2021	23,604.80 Kg Freon	Data received as a total quantity of cylinders consumed in 2021	A more accurate monthly recording system is recommended
		2022	12,624.80 Kg Freon		
	Purchased Electricity	2021	706,759,045 kWh	Consumption per month – kwh/month	-
		2022	744,640,294 kWh		

	Purchased Goods and Services	2021	9,516.60 Metric tons of paper	Yearly Quantities of Purchased Goods	Specifications of some paper items are missing, where applicable appropriate assumptions have been made such as paper weight (80 g – Uncoated office paper)
		2022	9,627.70 Metric tons of paper		
	Water Usage and Wastewater Treatment	2021	3,251,791 Cubic Meters	Consumption per month – Cubic meters/month	Appropriate assumptions have been made Conversion factors for water: Supply 350 Wh/m ³ Treatment 88 Wh/m ³
		2022	3,086,191.75 Cubic Meters		
	Solid Waste Disposal	2021	291,778.62 Metric tons	Yearly Recycled Solid Waste Consumption	Appropriate assumptions have been made for quantities of waste for each employee.
		2022	180,289.17 Metric tons	No data records of office waste.	The solid waste quantities per employee need to be recorded
	Air Travel + WTT	2021	592,844 p.km	No. of Tickets for domestic and international flights – no. of tickets/destinations	Flight distances were obtained using a great circle route mapper
		2022	468,098 p.km		
	Employee Transportation + WTT	2021	2,747,928 km	The Distance Travelled per Bus	In 2021, it is calculated based on assumptions. Appropriate assumptions have been made on the Daily distance traveled per bus multiplied by 240 working days in the year
		2022	602,138.94 Liters (Diesel)	Monthly Fuel Consumption per Bus	Data needs to be recorded in km or liters and not destinations which occurred in 2022 The tracking system is recommended to record actual Employee commuting data.



Good – No changes recommended



Satisfactory – Could be improved



Weak – Priority for improvement

Addressing Data Gaps

We are aware of the current data gaps and limitations, and we are continuously working on reducing those gaps. We are currently adopting a systematic approach to holistically integrate ESG across the company’s operations and business activities. This will only be possible through leveraging Telecom Egypt’s extensive database, robust analytical tools, and automated solutions, which will help minimize ESG risks and improve efficiencies.

Relevancy and Exclusions

The following section describes the GHG emission sources and gases that were excluded from the GHG inventory due to data not being available, or not technically feasible to obtain, or for data whose emission quantification is beyond Telecom Egypt’s operation and control. The exclusion rationale per category has also been specified.

Excluded Greenhouse Gases

SF₆, NF₃ and PF₆ are not captured for all Telecom Egypt’s premises and facilities for Scope 1 due to the nature of operations and activities (Service Industry) at Telecom Egypt.

Excluded Sources

Below are the Scope 3 emissions as defined in the GHG Protocol – Corporate Value Chain (Scope 3) Standard that has not been included in this carbon footprint report due to data not being attainable or activities whose emission quantification is beyond Telecom Egypt’s operation and control. An explanation is provided for the relevancy of each aspect as detailed in the below table.

Excluded Sources - Scope 3

No.	Activity	Explanation	Emissions (MtCo ₂ e)		Status
			2021	2022	
1	Purchased goods and services	This included paper only	8,749.65	8,851.70	Relevant – Calculated
2	Capital goods	Emissions from Telecom Egypt’s capital goods (buildings, cars, ...)	N/A	N/A	Relevant – Not yet calculated
3	Fuel and energy-related activities (not included in Scope 1 and 2)	This includes any Scope 3 energy emissions, in this case it’s WTT emissions, water and wastewater	4,380.66	4,916.55	Relevant – Calculated

4	Upstream transportation and distribution	Transportation from Telecom Egypt's upstream supply chain	N/A	N/A	Relevant – Not yet calculated
5	Waste generated in operations	This includes the waste generated from the different operations in addition to the waste generated by the employees	42,190.80	38,578.16	Relevant – Calculated
6	Business travel	This includes business travel using Telecom Egypt's owned vehicles, and business flights	120.78	157.17	Relevant – Calculated
7	Employee commuting	This includes emissions from use of coasters	488.41	362.99	Relevant – Calculated
8	Upstream leased assets	This category is not directly relevant because all assets leased are already included in the company's Scope 1 and 2 emissions and have therefore been excluded	N/A	N/A	Not relevant, Explanation provided
9	Downstream transportation	Telecom Egypt's downstream transportation emissions include transportation from warehouses to exchanges and branches	N/A	N/A	Relevant – Not yet calculated
10	Processing of sold products	Includes emissions occurring due to issued sim cards and mobile services	N/A	N/A	Relevant – Not yet calculated
11	Use of sold products	This category is not yet included in the calculations but could include sim cards distributed to the customers	N/A	N/A	Relevant – Not yet calculated
12	End of life treatment of sold products	Disposal of products (sim cards) is the responsibility of the client and does not fall under Telecom Egypt's boundaries.	N/A	N/A	Not relevant, Explanation provided
13	Downstream leased assets	Telecom Egypt does not lease any assets to third parties	N/A	N/A	Not relevant, Explanation provided
14	Franchises	This category is not relevant to Telecom Egypt's business and has therefore been excluded	N/A	N/A	Not relevant, Explanation provided
15	Investments	Emissions resulting from projects financed by Telecom Egypt	N/A	N/A	Relevant – Not yet calculated

Calculation Methodology per Footprint

Scope 1 – Direct Emissions

Stationary Combustion (Fuel Burning – Diesel Generators)

The generators that supply our facilities' electricity demands every month consume fuel, and the fuel burned by our facilities is logged into the database. The total amount of fuel consumed was multiplied by the corresponding emission factor to calculate the corresponding direct emissions.

$$\text{Fuel burning – Diesel emissions (MtCO}_2\text{e)} = \text{Fuel consumption (L)} \times \text{EF (MtCO}_2\text{e/L)}$$

Mobile Combustion (Fuel Burning – Owned Vehicles)

Emissions resulting from the owned vehicles fall under scope 1 direct emissions. The fuel burned by the owned vehicles or the data related to the distance traveled for each owned vehicle is logged into each facility's database monthly. WTT emissions were accounted for to capture the maximum climate impacts related to this activity.

$$\text{Owned Vehicle Emissions (MtCO}_2\text{e)} = \text{Fuel consumption (L)} \times \text{EF (MtCO}_2\text{e/L)}$$

Fugitive Emissions (Refrigerant Leakage)

Refrigerants are fluids used in refrigeration cycles for cooling purposes. The refrigerants' yearly consumption was retrieved from each facility's database. The emissions corresponding to refrigerant leakage were accounted for under scope 1. The total emissions were calculated by multiplying the total volume of refrigerants used by the corresponding emission factor.

$$\text{Refrigerant Leakage Emissions (MtCO}_2\text{e)} = \text{Refrigerant leakage (Kg)} \times \text{EF (MtCO}_2\text{e/Kg)}$$

Scope 2 – Indirect Emissions

Purchased Electricity (Electricity Consumption)

Electricity consumption is an indirect emissions activity that falls under scope 2. At Telecom Egypt, Electricity is mainly used in lighting, computers ... etc. The electricity consumption data per month was obtained from each facility's database. Emissions from electricity consumption are the product of the national grid emission factor and the annual electricity consumption of each facility.

$$\text{Electricity Consumption Emissions (MtCO}_2\text{e)} = \text{Electricity Consumption (kWh)} \times \text{EF (MtCO}_2\text{e/kWh)}$$

The grid electricity emission factor is country-specific and is calculated based on the Clean Development Mechanism (CDM) Methodological Tool. The CDM tool is used to calculate the emission factor based on Egypt's power generation and fuel mix following the country's trends and strategies.

Scope 3 – Indirect Emissions

Purchased Goods and Services

Purchased goods are the commodities used by the different sectors. For the branches and head offices, office supplies including ink, copy paper, envelopes, files, cardboard archive boxes, etc., as well as hygiene and disposal items such as face masks, paper cups, and plastic bags, were included in the purchased goods. Items that did not have clear specifications were estimated where applicable using common market characteristics and specifications, and otherwise excluded.

The yearly amounts of purchased goods per type have been retrieved from the internal data recordings, as units of items. The emissions were obtained by multiplying the emission factor per unit by the number of items.

$$\text{Purchased goods emissions (MtCO}_2\text{e)} = \sum \text{quantity of item (units)} \times \text{EF of each item (MtCO}_2\text{e/unit)}$$

Paper Consumption

Emissions from paper consumption are the product of the emission factor of the paper by the weight of paper used for each paper type. The emission factor accounted for extraction, processing, manufacturing, and transportation.

$$\text{Paper consumption emissions (MtCO}_2\text{e)} = \sum \text{weight of Paper (Mt)} \times \text{EF of paper (MtCO}_2\text{e/Mt)}$$

Fuel and Energy-Related Activities (Not Included in Scope 1 and 2)

Well to tank (WTT) Emissions

Well-to-tank (WTT) emissions result from the production of fuel, including resource extraction, initial processing, transport, fuel production, distribution and marketing, and delivery into the fuel tank of a consumer vehicle. This report accounted for WTT emissions to capture the maximum climate impacts from fuel-burning activities.

All fuel-burning activities, such as diesel, petrol & natural gas consumed by Telecom Egypt's buildings and fleet were included in WTT emissions. For each amount and type of fuel burned, the general formula was applied to determine the relevant emissions.

$$\text{Fuel burning – Diesel WTT emissions (MtCO}_2\text{e)} = \text{Fuel burned quantity (L)} \times \text{WTT EF (MtCO}_2\text{e/L)}$$

$$\text{Owned Vehicle WTT Emissions (MtCO}_2\text{e)} = \text{Fuel consumption (L)} \times \text{WTT-EF (MtCO}_2\text{e/L)}$$

Municipal Water Usage and Wastewater Treatment

Water usage and wastewater treatment are considered indirect emissions activities. The water consumption data per month was obtained from each facility's database. Emissions from water consumption and wastewater treatment are mainly due to the energy consumed in the process. Therefore, the emissions were calculated using a conversion formula:

For water supply 350 Wh/m³, and for wastewater treatment 88 Wh/m³.

Emissions from water consumption and wastewater treatment are the product of the national grid emission factor and the electricity consumption of the processes.

$$\text{Energy Consumption (Wh)} = \text{Water supply/wastewater (m}^3\text{)} \times \text{Conversion formula (Wh/m}^3\text{)}$$

$$\text{Water Supply and Treatment (MtCO}_2\text{e)} = \text{Energy Consumption (kWh)} \times \text{EF (MtCO}_2\text{e/kWh)}$$

Waste Generated in Operations

Solid Waste Disposal

Emissions from solid waste disposal are the product of the emission factor for each waste type, the quantity of waste for each type, and the fate of each waste stream. Several waste types are generated and disposed of at each facility, including cartons, plastics, metal scrap, and wood. Since the activities of each facility differ, the waste disposal varies accordingly as well. Most of the waste at the facilities is measured in tons, except for some other streams which are counted as units of items.

$$\text{Solid Waste Emissions (MtCO}_2\text{e)} = \text{Quantity of waste/type (Mt)} \times \text{EF/type (MtCO}_2\text{e/Mt)}$$

Business Travel

Air Travel

The emissions were calculated by multiplying the total distance traveled per passenger (pkm) for each flight category (domestic, short-haul, and long-haul) by the corresponding emission factor.

$$\text{Air Travel Emissions (MtCO}_2\text{e)} = \text{Distance travelled per passenger (pkm)} \times \text{EF (MtCO}_2\text{e /pkm)}$$

WTT emissions were also accounted for to capture the maximum climate impacts related to this activity.

$$\text{WTT Emissions (MtCO}_2\text{e)} = \text{working days} \times \text{Travelled distance (Km/day)} \times \text{WTT-EF (MtCO}_2\text{e/pKm)}$$

Employee Commuting

Employee Transportation

Employees and workers commute every day to and from work from different locations. In general, the employees and workers use different types of transportation means including minibuses and micro-buses

The daily distances were calculated for the buses in km multiplied by the working days and then multiplied by the corresponding emission factor to get the commuting emissions.

$$\text{Transportation Emissions (MtCO}_2\text{e)} = \text{Working days} \times \text{Travelled distance (Km/day)} \times \text{EF (MtCO}_2\text{e/Km)}$$

$$\text{WTT Emissions (MtCO}_2\text{e)} = \text{Working days} \times \text{Travelled distance (Km/day)} \times \text{WTT-EF (MtCO}_2\text{e/Km)}$$

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Definitions and Terminology

Definitions and Terminology

Activity Data	A quantitative measure of the company’s activity that results in a GHG emission or removal
Assumed Data	A parameter that is not site-specific but based on best practices, global averages, etc. that is more or less representative of the actual value.
Base Year	A historical year is used to compare the preceding year’s emissions. It can be a calendar year or averaged over several years (Time Series).
Climate Change	Long-term shifts in temperatures and weather patterns. These shifts may be natural or human-driven activities.
Carbon Dioxide Equivalent	Standardization of all greenhouse gases to reflect the global warming potential relative to carbon dioxide.
Direct Emissions	Greenhouse gas emissions from facilities/sources owned or controlled by the company.
Emission Factor	A factor allowing GHG emissions to be estimated from a unit of available activity data (e.g. tons of fuel consumed, tons of product produced and absolute GHG emissions).
Fugitive Emissions	Emissions that are not physically controlled but result from the intentional or unintentional releases of GHGs.
Greenhouse Gas (GHG)	A gas that absorbs and emits radiant energy within the thermal infra-red range, causing the greenhouse effect.
GHG Emission Factors	Specific value used to convert activity data into greenhouse gas emission values.

GHG Inventory	List of emission sources and the associated emissions quantified using standardized methods.
Greenhouse Gas Emission	The total mass of a GHG released to the atmosphere over a specified period.
Greenhouse Gas Report	Stand-alone document intended to communicate an organization's GHG-related information to its intended users.
Greenhouse Gas Source	Physical unit or process that releases a GHG into the atmosphere.
Indirect Emissions	Greenhouse gas emissions from facilities/ sources that are not owned or controlled by the company, but for which the activities of the company is responsible, for example: electricity purchase.
Inventory Boundary	Imaginary line that encompasses the direct and indirect emissions that are included in the inventory. It results from the chosen organizational and operational boundaries.
IPCC	The Intergovernmental Panel on Climate Change is an intergovernmental body of the United Nations responsible for advancing knowledge on human-induced climate change.
Mobile Combustion	Burning of fuels by transportation devices such as cars, trucks, trains, airplanes, etc.
Operational Boundaries	The boundaries that determine the direct and indirect emissions associated with operations owned or controlled by the company. This assessment allows the company to establish which operations and sources cause direct and indirect emissions, and to decide which indirect emissions to include as a consequence of its operations.
Organizational Boundaries	The boundaries that determine the operations owned or controlled by the company, depending on the consolidation approach taken (equity or control approach).
Other Indirect Greenhouse Gas Emissions	GHG emissions, other than energy indirect GHG emissions, which is a consequence of an organization's activities, but arises from greenhouse gas sources that are owned or controlled by other organizations.

Scope 3 Inventory	The company's indirect emissions other than those covered in Scope2.
Stationary Combustion	Burning of fuels to generate electricity, steam, heat, or power in stationary equipment such as boilers, furnaces etc.
Refrigerant	A refrigerant is a substance or mixture, usually a fluid, used in a heat pump and refrigeration cycle.
Photo Voltaic (PV)	The conversion of light into electricity using semiconducting materials that exhibit the photovoltaic effect, a phenomenon studied in physics, photochemistry, and electrochemistry. The photovoltaic effect is commercially used for electricity generation and as photo sensors.

Bibliography

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- GHG Protocol - A Corporate Accounting and Reporting Standard
- GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard
- ISO 14064-1:2018 Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals
- 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for Greenhouse Gas Inventories (with 2019 Refinements)
- DEFRA Department for Environment, Food & Rural Affairs UK 2021





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